

SENECIO QUAYLEI (ASTERACEAE: SENECIONEAE), A NEW SPECIES FROM NORTH CENTRAL TEXAS, U.S.A.

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ABSTRACT

Senecio quaylei, a new species from Texas, U.S.A., is described.

RESUMEN

Se describe *Senecio quaylei*, una especie nueva de Texas, U.S.A.

Jeffrey Quayle, an astute amateur naturalist in north central Texas, recently submitted an unusual *Senecio* to BRIT for determination. It was presumed that the plant was simply a recent or otherwise unrecorded introduction, but a survey of the literature and several herbaria, plus the opinions of several colleagues, suggested no possible matches, so it is offered here as a new species, *Senecio quaylei*.

The only known occurrence of the plant is a conspicuous colony of about 15 individuals, growing waist high in a weedy roadside ditch, along with *Cirsium*, *Geranium*, *Sonchus*, *Verbena*, and much dead vegetation from the previous year. The new species vaguely resembles *Senecio ampullaceus* Hook., a Texas endemic of disturbed open sites in the central part of the state, however, *S. quaylei* is glabrous and notably coarse, to 12 dm tall, while *S. ampullaceus* is conspicuously hairy but unevenly glabrate in age and typically only 3–7 dm tall. In addition, the new species has large, broad, and clasping cauline leaves. These characteristics combine to give the new species a distinctive gross aspect. Four of the plants were collected to make the specimens needed for documentation, and they were divided into eleven herbarium sheets.

Structurally, the stems are hefty, with the proximal third some 10–15 mm in diameter, but they are hollow and thin-walled. There is a conspicuous purplish-red layer in the sub-epidermal region of freshly cut proximal stems; the red color fades as the specimen dries. The leaves have unevenly scattered light-brownish spots that are caused by a species of *Coleosporium*, a heteroecious rust, *fide* Dr. Joe Hennen, a mycologist at BRIT and an authority on rust fungi.

The biology of *S. quaylei* is unknown and only suggested from inference. It appears to be an annual, with a short, narrow taproot and a tuft of abundant, thin, fibrous roots that are weakly branching. The most mature ovaries in the specimens collected are wrinkled and unfilled, indicating that they are sterile. The pollen is of uneven size and

shape, suggesting that it is of reduced or doubtful viability. The chromosome number is undetermined.

The resemblance of *Senecio quaylei* to *Senecio ampullaceus* and other typical senecios (Barkley 1999) in both structure and aspect clearly places the new species in *Senecio* s. str.; rigorous quantitative analyses are yet to be done. It is possible that additional data from cytology, pollen morphology, and comparative biochemistry, may suggest that the new species is allied to *Packera*, but that notion seems remote. *Senecio quaylei* is of poor fit in the keys to *Senecio* in the treatment in the North American Flora (Barkley 1978), for there the possession of leaves that are progressively reduced upwards carries it to the *Senecio integrifolius* assemblage, a group with unbranched fleshy-fibrous roots and of very different gross aspect. If the initial couplet of the key is ignored, it falls into the Annui group, along with *Senecio ampullaceus*.

Recognition of *Senecio quaylei* generates speculation on its significance in the flora. The possibility that it is merely an exotic waif cannot be discounted, but neither can it be said that it is not a rare member of the regional flora. This notion is compatible with the review by Ertter (2000) on the occurrences and recognition of distinctive species of limited occurrence in North America.

Senecio quaylei T.M. Barkley, sp. nov. (**Figs. 1, 2**). TYPE: U.S.A. TEXAS. PARKER Co.: waste ground adjacent to Lake Mineral Wells State Trailway (an abandoned railroad right-of-way), at Holder Chapel Road intersection, ca. 2 mi N of Hwy 180, E of Mineral Wells, 32° 45' N, 98° 02' W, 29 Apr 2000, T.M. Barkley 4882, M. Barkley, R.J. O'Kennon, & W. Garrett (HOLOTYPE: BRIT; ISOTYPES: BRIT, MO, NY, TEX, UC).

A *Senecioni ampullaceo* similis sed differt altitudine ampliore (7–12 dm vs. 3–7 dm) et foliis caulinis glabris amplectentibus ovati-lanceolatis folia basalia amplitudine fere aequans.

Annual, 8–12 dm tall, glabrous throughout or with a few inconspicuous hairs on the peduncles and phyllaries. *Stems* single, striate, the proximal third 10–15 mm in diameter, narrower distally, hollow, with a conspicuous reddish subepidermal layer when freshly cut; arising from a short, thin taproot surrounded by abundant, thin and sparingly branched fibrous roots. *Basal and proximal caudine leaves* with blades ovate, mostly 12–24 cm long and 8–12 cm wide, margins wavy, with a few scattered minute denticles, midvein prominent and lateral veins less conspicuous in dried specimens, tapering or gently contracted to a distinct petiole, ca. 2/3 the length of the blade. *Middle caudine leaves* with blades nearly as large as the basal leaves, ovate to broadly lanceolate, sessile and clasping. *Distal caudine leaves* lanceolate to linear-lanceolate, 6–14 cm long, sessile, the distal most further reduced and bractlike. *Capitulescences* terminal or arising from the axils of the upper leaves; fundamentally corymbiform cymes of 20–40 capitula, or a close cluster of corymbiform cymules. *Involucres* cylindrical or turbinate to weakly campanulate, each subtended by a weakly defined calyxulus of 2–7 linear bracteoles, 1–3 mm long, margins hairy. *Phyllaries* mostly 13, ± 8 mm long, green with hyaline margins, abaxial surfaces with short hairs distally, the apex with a minute tuft of hyaline hairs. *Corollas* yellow. *Ray florets* mostly 8, pistillate; corollas ca. 11 mm long, tubes 4 mm and

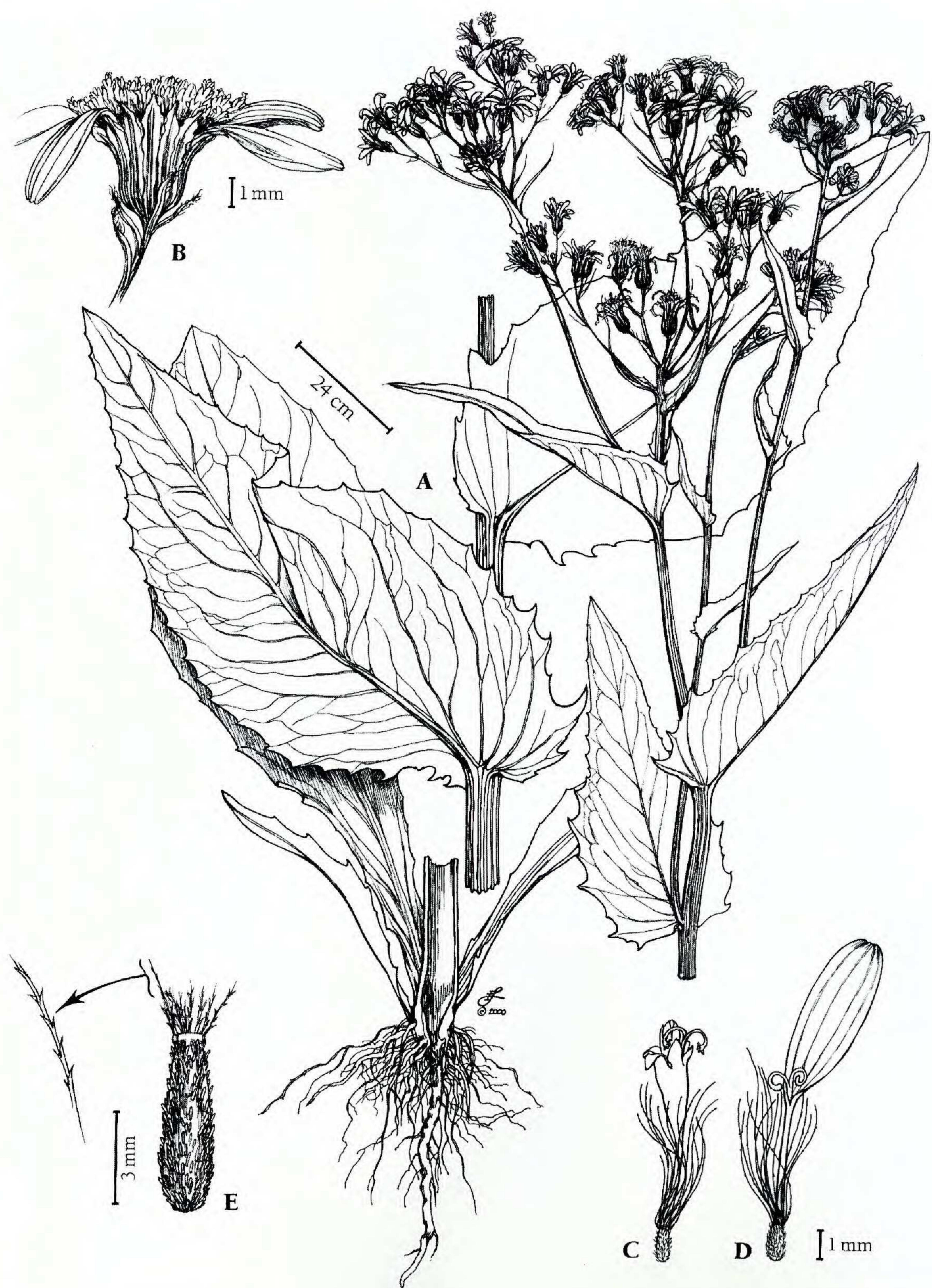


FIG. 1. *Senecio quaylei*. A. habit, B. capitulum, C. disk floret, D. ray floret, E. achene (immature). Drawn from type material by Linny Heagy.



FIG. 2. *Senecio quaylei*. Habitat from type locality. Photograph by Bob O'Kennon.

laminae ca. 7 mm long, 2.5 mm wide. Disk florets 20–40, bisexual; corollas 7(–10) mm long, tube and limb (including lobes) of about equal length, corolla lobes triangular, ± 0.5 mm long. Cypselae not seen, oldest ovaries wrinkled, empty, 1–3 mm long, pubescent throughout. Pappus of abundant white, minutely barbellate bristles in a single series, 6–7 mm long. Chromosome number unknown.

Etymology.—The specific epithet *quaylei* commemorates Jeffrey Quayle, the discoverer of the new species.

Distribution.—Endemic to Texas. There are no known collections other than the type collection.

KEY TO SPECIES OF *SENECIO* S. STR. IN NORTH CENTRAL TEXAS

This key covers the range of the recently published Illustrated Flora of North Central Texas (Diggs et al. 1999)

1. Capitula discoid; ray florets rarely present and then with laminae of corollas less than 1 mm long; phyllaries and calyculate bracts with prominent triangular black tips; leaves shallowly pinnate. Introduced weeds. **1. *S. vulgaris***
1. Capitula radiate; laminae of ray corollas 7–15 mm long; phyllaries and calyculate bracts green or gray-green tipped; leaves shallowly toothed to subentire. Native or apparently so.
 2. Herbage woolly-pubescent, or at most unevenly glabrate in age; middle cauline leaves lanceolate and rarely more than 10 cm long, shallowly clasping; stems 3–7(+) dm tall. ***S. ampullaceus***
 2. Herbage glabrous or nearly so, middle cauline leaves ovate or broadly lanceolate, 10–20 cm long, prominently clasping; stems mostly 8–12 dm tall. ***S. quaylei***

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